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3/1989 Zheng.

(12) United States Patent Zheng

(10) Patent No.:

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US 6,305,396 B1

(45) Date of Patent:

Oct. 23, 2001

(54)	COLLAPSIBLE STRUCTURES			
(75)	Inventor:	Yu Zheng, Walnut, CA (US)		
(73)	Assignee:	Patent Category Corp., Walnut, CA (US)		
(*.)	Notice:	Subject to any disclaimer, the term of thi patent is extended or adjusted under 3: U.S.C. 154(b) by 0 days.		

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(21) Appl. No.: 09/543,245

(22) Filed: Apr. 5, 2000

Related U.S. Application Data

Continuation-in-part of application No. 08/639,530, filed on May 1, 1996, which is a division of application No. 08/529, 552, filed on Sep. 18, 1995, now Pat. No. 5,579,799, which is a continuation of application No. 08/024,690, filed on Mar. 1, 1993, now Pat. No. 5,467,794, which is a continuation-in-part of application No. 07/764,784, filed on Sep. 24, 1991, now Pat. No. 5,301,705.

(51)	Int. Cl. ⁷	Е04Н 15/40
(52)	.U.S. Cl.	. 135/126; 135/128; 135/115;
	,	135/143
(58)	Field of Search	135/125, 126,
	•	135/128, 143, 157, 115

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Primary Examiner-Robert Canfield (74) Attorney, Agent, or Firm-Raymond Sun

ABSTRACT

A collapsible structure includes a plurality of foldable frame members each having a folded and an unfolded orientation. A fabric material is provided for covering portions of the frame members to form a side panel for each frame member. The structure can have a removable roof. The structure may be folded and stored by folding the side panels and their corresponding frame members on top of each other about the hinge portions to have the side panels and frame members overlying each other. The overlaying side panels and frame members are then collapsed by twisting and folding to form a plurality of concentric frame members and side panels to substantially reduce the size of the shade structure.

10 Claims, 18 Drawing Sheets

